

Government of the Province of Saskatchewan

DEPARTMENT OF MUNICIPAL AFFAIRS

Regina, Sask., June 30, 1914.

To the Secretary Treasurers of all Municipalities:

Complying with the terms of a resolution, passed by the Union of Saskatchewan Municipalities, at its convention held in the City of Moose Jaw on the 24th, 25th and 26th instant, I beg to supply by the enclosed pamphlet a paper on "Methods of Repayment of Loans and the Administration of Sinking Funds in Saskatchewan," given at the said convention by Mr. S. P. Grosch, one of the commissioners of the Local Government Board, Regina. In the opinion of the Union of Saskatchewan Municipalities and of the Department of Municipal Affairs this paper is worthy of the special attention of your municipality.

Your obedient servant,

J. N. BAYNE,

Deputy Minister.

Methods of Repayment of Loans and the Administration of Sinking Funds in Saskatchewan

After a local authority has duly considered the advisability of undertaking work of a permanent nature to be paid for by obtaining a loan by way of debenture to an amount sufficient to pay for the cost of such work, and has carefully considered the estimated lifetime of the work in order that the loan may be repaid within such period, it is then the duty of such local authority to consider and determine the method of repayment to be adopted in each particular case, always keeping in mind the nature of the particular work to be undertaken and paid for out of the proceeds of the loan, and the market in which the debenture will probably be sold. This must be decided upon before the enabling bylaw is passed, as it is in this bylaw that the method of repayment is set out.

It would appear that very little consideration has in the past been given to the method of repayment to be adopted; for this reason, I have considered it advisable to draw attention to the various methods of repayment provided for by the several statutes of the province, and in a concise manner to consider some of the more essential features of each method as follows:

1. The instalment method.
2. The annuity method.
3. The sinking fund method.

1. THE INSTALMENT METHOD.

According to the instalment method the loan is repaid to the lender by equal annual instalments of principal. Interest is at the same time paid on the balance of the loan unpaid. The amount of the annual payments gradually decreases, being somewhat large during the earlier periods and comparatively small during the later periods of the loan, the reason being that the interest charges decrease in proportion as the principal is reduced. This method is merely an arithmetical calculation, involving only a question of simple interest on the amount of the loan from time to time remaining unpaid.

Under this method a loan of \$10,000 repayable in ten years, bearing interest at 6 per cent., would be repayable in the years indicated as follows:

<i>Serial Instalment</i>			
Year	Principal	Interest	Total
1..... <i>Instalment</i>	\$1,000.00	\$600.00	\$1,000.00
5..... <i>Serial</i>	1,000.00	360.00	1,360.00
10.....	1,000.00	60.00	1,060.00

The lender's objection to this method is that he is compelled to accept annually a portion of the principal, and that he is therefore obliged to repeatedly reinvest comparatively small amounts.

The ratepayer's objection is that when expensive works are undertaken involving a large loan the burden of taxation during the earlier periods of the loan is so heavy as to make the undertaking almost prohibitive, while if the burden were equally distributed during the entire period of the loan it would make the undertaking feasible. This is especially applicable in the case of newly organised districts where the ratepayers are usually comparatively few in number and least able to pay during the earlier period of the loan. This objection cannot apply with equal force to small loans, and on the principle that the burden should be regulated as nearly as may be according to the benefits derived, it would be well in many instances to adopt this method, as it occasionally happens that the ratepayers derive a special benefit from the expenditure while it lasts.

A more valid reason for the adoption of this method is that where the work is of such a nature that the cost of maintenance is likely to be an increasing one during the later periods of the loan, or that an alteration or reconstruction of the works may be necessary, or if the benefits to be derived from the works are likely to diminish during the period of the loan, then the instalment method would appear to be very applicable indeed, unless market conditions are such that by its adoption it would compel a local authority to make too great a sacrifice in the price, which, however, is seldom or ever the case, and particularly not where comparatively small loans are negotiated.

Owing to the equal annual repayment of the principal from the commencement of the loan this method, as I shall endeavour to show later, calls for the least amount of money to be raised by way of taxes during the period of the loan.

2. THE ANNUITY METHOD.

The annuity method consists of the repayment of an equal annual instalment of principal and interest combined. The annual amount repaid to the lender consists in the earlier stages of the loan of a comparatively small portion of principal and a comparatively large portion of interest with the portion of principal included in the instalment of repayment gradually increasing and the portion of interest gradually decreasing.

Considering a loan of \$10,000 repayable in ten years with interest at 6 per cent., the amounts of repayment for the respective years indicated would be as follows:

Year	Principal	Interest	Total
1.....	\$ 758.67	\$ 600.00	\$1,358.67
5.....	957.81	400.86	1,358.67
10.....	1,281.77	76.90	1,358.67

The lender is repaid a smaller portion of the principal during the early stages of the loan and a larger portion during the latter

THE PROVINCE OF SASKATCHEWAN
CANADA



SPG/V.

LOCAL GOVERNMENT BOARD

REGINA August 11th, 1914

Sir :

I have your letter of the 30th ultimo, and regret that owing to my absence from the city it was not attended to at an earlier date.

As requested, I enclose herewith a copy of the paper as read by me at the convention of the Union^{of} Saskatchewan Municipalities.

I trust that the figures as set out in the paper will be sufficient, although I did not take them year by year.

If, after reading the paper, you wish to take up any point with me I shall be pleased to discuss it with you.

I am always anxious to obtain the views of men in positions similar to your own, whose experience in working out these matters is always of interest and value to me.

Yours truly,

S. P. Brosch

His Worship Mayor Hardie,
Lethbridge, Alta.

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loan than under the instalment method. Reinvestment of principal, in a similar manner as under the instalment method, is therefore necessary.

The ratepayers' objection under the instalment method that the burden falls most heavily during the early stages of the loan is here removed. The amounts required to be raised annually are equal throughout the entire period of the loan.

This method of repayment will, where the work to be undertaken is one which will involve considerable expense in maintenance during the later period of the loan, shift the heavier portion of the burden to future ratepayers; where, however, the loan is applied to the purchase of land, or the construction of substantial buildings, and the annual charge of maintenance is not likely to increase appreciably during the period of the loan, the annuity method would appear to be the proper method to adopt, provided the benefits are calculated to continue practically unabated throughout the period prescribed for repayment.

This method of repayment is frequently favoured by local authorities at the time of borrowing, owing to the opportunity it affords of making the earlier annual repayments lighter than under the instalment method. The fact should however not be overlooked that the later payments will be heavier and that the total amount required for repayment of the loan will be considerably greater than under the instalment method, this being on account of the local authority retaining a larger portion of the principal for a longer period and paying interest thereon.

I wish to draw your attention to the fact that both the instalment method and the annuity method in effect contain within themselves a sinking fund which bears the same rate of interest as the loan itself. Every time a portion of the principal is repaid interest on that portion immediately ceases which, in effect, is the same as setting aside a similar amount as a sinking fund, which when allowed to accumulate with interest at the same rate as borne by the loan will extinguish the debt at the expiration of the prescribed period. By making such repayments of portions of the principal direct no expense is incurred on account of reinvestment, and the trouble and risk incident to investment is obviated.

In an endeavour to overcome to some degree the objection that under the instalment and annuity methods the lender is compelled to accept annually a portion of the principal advanced, the method of issuing serial bonds or debentures has been devised. Instead of issuing debentures in such a manner that the number of coupons attached to the debentures will equal the number of annual payments to be made, and each coupon will equal the amount of both principal and interest due in the respective years as indicated on the coupons, debentures are now issued in such a manner that there is one or more debenture for each year during the period of the loan, the amount of the debentures being for the amount of principal repayable in the particular year of maturity indicated on the debenture, or if the amount is large more than one debenture may be issued for any one year for a portion of the principal due, the total amount of such debentures issued for one year being equal to the amount of principal repayable in that particular year. Coupons for interest only are attached, the number varying with the number of annual payments of interest to be made. Each debenture is complete in itself. Accordingly, on the first year one coupon is attached, the second year two coupons, the third year three coupons, and so on from

year to year for the number of years over which the loan is spread. The amount of each coupon being the amount of interest due annually on the amount of the particular debenture. Interest is computed at the rate payable on the loan. One of such interest coupons is payable in the year indicated on the face thereof.

According to this method the bond buyer may dispose of one year's debenture or debentures to a single client, and if the debentures for each particular year are distributed among as many different clients, then the objection that the lender is compelled to accept a portion of the principal annually is overcome, as the client who holds the debenture or debentures payable during, let us say, the seventh year would obtain interest annually during the seven years, and would have the whole amount of the principal repaid at the expiration of the seventh year, similarly each year's debentures would be dealt with during the period of the loan.

The bond buyer has the additional advantage of being able to give his clients a certain number of short or long term debentures as the individual lender may desire. According to this method of issue the individual debentures resemble a sinking fund debenture in that no portion of the principal is repaid during the term of the debenture. It must be pointed out, however, that if a single client were to purchase and hold as an investment the entire issue the above advantage would not be derived by such client.

3. THE SINKING FUND METHOD.

The sinking fund method provides for the setting aside annually an equal instalment, which by compound interest, computed at the rate of 4 per cent. per annum will accumulate to such an amount as will pay off the loan at the end of the prescribed period. Interest on the total amount of principal being payable annually or semi-annually as the case may be.

This method differs from both the instalment and annuity methods in that the lender is not paid back any portion of the principal during the period of the loan, the total amount of the loan being repaid at the expiration of the period during which it is to run. This overcomes the lender's objection in this respect.

The annual amounts raised by taxes to pay into the sinking fund and pay interest each year are equal, and in this respect this method is similar to the annuity method, where the burden of the loan is shared by the taxpayer by equal annual instalments. In this respect the reasons for and against such a method as already discussed under the annuity method are applicable here.

In the instalment and annuity methods there is no question as to the rate of accumulation. The amounts are repaid direct to the lender and interest ceases on the amount of principal repaid, therefore the local authority obtains the same rate of interest on repayments as it is paying on the loan itself. According to Saskatchewan statutes, sinking funds are calculated on a 4 per cent. basis.

In order that we may more readily understand the relative cost to the ratepayer of adopting the various methods discussed, let us consider the total amount required to redeem a loan of \$100,000 spread over thirty years, and basing the sinking fund at the statutory rate.

(1) A loan of \$100,000, 30 years, 5 per centum:

The Instalment Method.....	\$177,500.00
The Annuity Method.....	195,154.20
The Sinking Fund Method.....	203,490.30

The above figures show a difference of \$17,654.20 in favour of the instalment method over the annuity method, and a difference of \$25,990.30 in favour of the instalment method over the sinking fund method, also a difference of \$8,336.10 in favour of the annuity method over the sinking fund method.

(2) A loan of \$100,000, 30 years, 6 per centum:

The Instalment Method.....	\$193,000.00
The Annuity Method.....	217,946.70
The Sinking Fund Method.....	233,490.30

The above figures show a difference of \$24,946.70 in favour of the instalment method over the annuity method, and a difference of \$40,490.30 in favour of the instalment method over the sinking fund method, also a difference of \$15,543.60 in favour of the annuity method over the sinking fund method.

(3) A loan of \$100,000, 30 years, 7 per centum:

The Instalment Method.....	\$208,500.00
The Annuity Method.....	241,759.20
The Sinking Fund Method.....	263,490.30

The above figures show a difference of \$33,259.20 in favour of the instalment method over the annuity method, and a difference of \$54,990.30 in favour of the instalment method, over the sinking fund method, also a difference of \$21,731.10 in favour of the annuity method over the sinking fund method.

It will be observed that the difference increases as the rate of interest increases; this is due to the spread between the increased rate of interest and the permanent basis of computing the sinking fund at 4 per cent.

The differences are shown on a loan of \$100,000. If the loan is less the difference will be proportionately less, and if the loan is greater the difference will be proportionately greater, so if the term of repayment is shorter the difference will be less and if the term of repayment is longer the difference will be greater. When the total debenture indebtedness of some of the Local Authorities running into the millions is considered the additional cost to the ratepayers assumes large proportions.

In the case of the sinking fund method the difference may be made up by the careful administration and investment of the fund, although I regret to say that my attention has been called to the sinking fund of one local authority which was deposited as a savings account in a local bank and earning interest at the rate of only 3 per cent., while the statutory basis of this fund is 4 per cent. This, if allowed to continue, which it was not, would have meant a shortage in the fund when the time came to repay the loan, unless such shortage were made up in the meantime.

It would therefore appear that for those local authorities that have adopted the sinking fund method for repaying outstanding loans and that desire to reduce the total cost of this method to the ratepayers, investment in a sinking fund is almost a necessity. Ample provision has been made

by the legislature for such investment and authority has been vested in municipal councils, sinking funds trustees and the local government board to administer and invest sinking funds.

Taking into consideration the trouble, anxiety and possible loss in connection with the administration and investment of sinking funds, the care and supervision required for their proper administration, the expert knowledge required of officials, the additional cost and expense of investment, the additional cost of the sinking fund method over other methods of repayment, when investment is not made to make up the difference, it would be well for local authorities to consider whether the additional price (if any), which they may obtain for straight term debentures, will sufficiently offset the disadvantages of the sinking fund method, especially for the smaller local authorities whose borrowings are seldom of sufficient magnitude to reach the larger markets where the sinking fund method of repayment is almost demanded.

THE ADMINISTRATION OF SINKING FUNDS.

In investing sinking funds, it should always be remembered that they are trust funds, and should be administered as such. The keynote to all investments should be security rather than large returns. It is really money set aside for the holder of the debentures in order that he may rest assured that when the time for repayment arrives there will be sufficient money ready and waiting to retire the loan. It is a fund that when invested should be in securities of like safety to the original loan itself.

The investments should not be restricted to one kind of security, but should be in different kinds of securities, not centred in one locality, but spread over as large an area as possible. Personally, I am very much in favour of investing in the debentures of other municipalities, school districts and government securities rather than in mortgages. If mortgages are taken at all they should be taken on only gilt-edge revenue-producing properties, with a limit of approximately one-third of the appraised value of the property. The mortgages should be taken preferably on lands outside the limits of the local authority making the investment in order that the investing area may be extended and all local feeling removed.

Generally speaking, a mortgage is not as safe an investment as a municipal bond, which has all the taxing powers behind it, and is a first charge on all rateable property, and is therefore prior to the mortgage itself. If taxes are not paid, the mortgagee must advance or cause to be advanced the amount of such taxes to protect his security, and in making payment of taxes the mortgagee is in part assisting the municipality in paying its bond indebtedness. Moreover, I am informed by reliable authorities that, although there are occasional delinquents who have not paid their debenture coupons as promptly as might be desired, since the inception of the province there has not been a single municipal or school bond repudiated. I cannot make the same statement in respect to mortgage investments.

In case local authorities desire to invest sinking funds in their own debentures, it would be well to give a preference to short term debentures. Care should always be taken in such cases to see that the debentures taken up by the sinking fund will mature before any large amount of

maturing loans, in order that the money and not merely securities is at the disposal of the officials when required, otherwise local authorities may be forced upon the market at inopportune times, with securities upon the sale of which loss may be sustained.

When investments are made in such a manner as to spread over an area, little less in extent than provincial, the security then becomes, in respect to area, an almost provincial security; and if loss were sustained in any particular locality it would not wipe out the fund, as would be the case if all were invested in that particular locality.

In this province a large portion of the indebtedness of local authorities has been incurred during the last decade. Sinking funds have been accumulating for a comparatively short period. Local authorities have not as yet been called upon to handle large amounts for investment; these amounts will increase from year to year, and will bring with them more difficult problems for solution in respect to their administration. Up to the present, I believe, no mistakes have been made which are insurmountable, but that sinking funds generally have been administered with care and with a view to safety. Let us not forget, however, that like the credit of individuals, municipal credit rests upon confidence, and such confidence rests upon the performance by local authorities of the obligations which they have undertaken, the businesslike manner in which they consider the repayment of their loans, the method by which they administer their sinking funds and conduct their affairs at large.

S. P. GROSCH,
Commissioner, The Local Government Board.

